UTAH ENERGY STATISTICAL ABSTRACT

With data through 2002



Prepared by the Utah Energy Office Department of Natural Resources

www.energy.utah.gov

Printed December 2003



UTAH ENERGY STATISTICAL ABSTRACT

Printed December 2003

Prepared by the Utah Ene	rgy Office
Thomas Brill, Director	

Michael D. Vanden Berg, Geologist Glade Sowards, Energy Analyst Kimberly Mellin, Information Technology Analyst

Cover photographs provided by Bureau of Land Management and Utah Energy Office

Utah Energy Office Department of Natural Resources 1594 West North Temple, Suite 3610 P.O. Box 146480 Salt Lake City, UT 84114-6480

PREFACE

One of the objectives of the Utah Energy Office is to provide government agencies, private industry, and the general public with timely, accurate and objective energy data. To help meet this objective, we compile Utah-specific energy data from federal and state government, energy industry trade associations, energy companies and private information services in a single, comprehensive document: the *Utah Energy Statistical Abstract*.

The seventh edition of the *Utah Energy Statistical Abstract* is organized by primary energy source and each section lists historical and current data on reserves, production, consumption, distribution and prices. An appendix and glossary provide information on definitions, technical terms and conversion factors.

The *Utah Energy Statistical Abstract* is continually updated as more current information becomes available. Updated tables (Excel spreadsheet files) and figures (PDF files) may be found on the Utah Energy Office web site at: www.energy.utah.gov

To learn more about specific energy resources or to request a paper copy of the *Utah Energy Statistical Abstract*, contact the Utah Energy Office at (801) 538-5428.

TABLE OF CONTENTS

Prefa	ice	iii
Table	e of Contents.	v
List c	of Figures	vii
List c	of Tables	ix
1.0	Overview	1
2.0	Coal	31
3.0	Crude Oil and Petroleum Products.	69
4.0	Natural Gas	107
5.0	Electricity	139
6.0	Renewable Resources.	181
7.0	Weather	201
8.0	U.S. Overview by State	207
Appe	endix	213
Gloss	sary	219

LIST OF FIGURES

Overview		
1.1	Utah Energy Balance, 1960-2002.	6
1.2a	U.S. Energy Production by Primary Source, 1960-2002.	10
1.2b	Percentage of U.S. Energy Production by Primary Source, 1960-2002	10
1.3a	Energy Production in Utah by Primary Source, 1960-2002	
1.3b	Percentage of Energy Production in Utah by Primary Source, 1960-2002	12
1.4a	U.S. Net Generation of Electricity by Energy Source, 1960-2002	14
1.4b	Percentage of U.S. Net Generation of Electricity by Energy Source, 1960-2002	14
1.5a	Net Generation of Electricity in Utah by Energy Source, 1960-2002	16
1.5b	Percentage of Net Generation of Electricity in Utah by Energy Source, 1960-2002.	16
1.6a	U.S. Energy Consumption by Source, 1960-2002.	20
1.6b	Percentage of U.S. Energy Consumption by Source, 1960-2002	20
1.7a	Energy Consumption in Utah by Energy Source, 1960-2002	22
1.7b	Percentage of Energy Consumption in Utah by Energy Source, 1960-2002	22
1.8	U.S. Energy Consumption by End Use, 1960-2002.	24
1.9	Energy Consumption in Utah by End Use, 1960-2002	26
1.10	U.S. Average Residential Fuel Prices, 1960-2003	28
1.11	Average Residential Fuel Prices in Utah, 1960-2003	30
Coal		
2.1	Remaining Recoverable Reserves by Utah Coal Field, 2002	35
2.2	Coal Production in Utah by County, 1960-2002.	43
2.3	Coal Production in Utah by Coal Field, 1982-2002.	45
2.4	Coal Production in Utah by Landownership, 1980-2002.	47
2.5	Distribution of Utah Coal by Method of Transportation, 1970-2002	51
2.6	Distribution of Utah Coal by End Use, 1970-2002.	55
2.7	Distribution of Utah Coal by Destination, 2002.	58
2.8	Distribution of Coal in Utah by End Use (imports plus in-state distribution), 1960-2002.	62
2.9	Consumption of Coal in Utah by End Use, 1960-2002	
2.10	End-Use Price of Coal Consumed in Utah, 1970-2002.	67
Crude Oil	and Petroleum Products	
3.1	Proved Reserves of Crude Oil and Natural Gas Liquids in Utah, 1960-2002	72
3.2	Utah Crude Oil Production and Total Proved Reserves, 1960-2002	
3.3	Well Completions in Utah, 1960-2002.	
3.4	Utah Crude Oil Production, 1960-2002.	
3.5	Utah Crude Oil Production by County. 2002.	82

Crude Oi	l and Petroleum Products (continued)	
3.6	Utah Crude Oil Production by Landownership, 1960-2002	86
3.7	Value of Crude Oil in Utah, 1960-2002.	90
3.8	Utah Refinery Receipts of Crude Oil by State of Origin, 1960-2002	. 92
3.9	Refinery Production Activity in Utah, 2002	95
3.10	Consumption of Petroleum Products in Utah, 1960-2002	99
3.11	Consumption of Petroleum Products in Utah by End Use, 1960-2002	101
3.12	End Use Price of Petroleum Products in Utah, 1970-2002.	103
3.13	Price (excluding tax) of Motor Gasoline for the U.S. and Utah, 1984-2002	. 105
Natural G	as	
4.1	Proved Reserves of Natural Gas in Utah, 1960-2002.	110
4.2	Proved Reserves and Gross Production of Natural Gas in Utah, 1960-2002	111
4.3	Natural Gas Gross Production in Utah by County, 2002.	. 116
4.4	Gross Withdrawal and Marketed Production of Natural Gas in Utah, 1960-2002	. 122
4.5	Natural Gas Marketed Production by Landownership, 1960-2002	124
4.6	Value of Natural Gas in Utah, 1960-2002.	128
4.7	Dry Natural Gas Production and Net Supply in Utah, 1960-2002	130
4.8	Consumption of Natural Gas in Utah, 1960-2002.	133
4.9	End-Use Price of Natural Gas Consumed in Utah, 1960-2002	135
Electricity		
5.1	Largest Power Plants in Utah by Generator Nameplate Capacity, 2002	141
5.2	Net Generation of Electricity in Utah by Energy Sources, 1960-2002	
5.3	Cost of Fuel to Generate Electricity in Utah, 1970-2002.	164
5.4	Sales of Electricity in Utah by Class of Service, 1960-2002.	166
5.5	Price of Electricity in Utah by Class of Service, 1960-2002.	168
5.6	Expenditures for Electricity by Class of Service in Utah, 1960-2002	. 172
5.7	Electric Utility Customers in Utah by Class of Service, 1960-2002	174
Renewable	e Resources	
6.1	Percentage of U.S. Renewable and Fossil Fuel Energy Production, 1960-2002	. 185
6.2	Percentage of U.S. Renewable and Fossil Fuel Energy Consumption, 1960-2002	. 187
6.3a	Wind verses Electric Grid Power Usage at Camp Williams, May 2000 - Dec. 2002	106
6.3b	(yearly data)	
Weather		
7.1	Cooling Degree Days in Utah, 1960-2002.	203
7.2	Heating Degree Days in Utah, 1960-2002.	205

LIST OF TABLES

Overview		
1.1	U.S. Energy Consumption and Expenditures, 1970-2002.	2
1.2	Energy Consumption and Expenditures in Utah, 1970-2002.	3
1.3	U.S. Energy Balance, 1960-2002.	4
1.4	Utah Energy Balance, 1960-2002.	5
1.5	U.S. Energy Production by Primary Source, 1960-2002 (physical units)	7
1.6	Energy Production in Utah by Primary Source, 1960-2002 (physical units)	8
1.7	U.S. Energy Production by Primary Source, 1960-2002 (trillion Btu)	9
1.8	Energy Production in Utah by Primary Source, 1960-2002 (trillion Btu)	11
1.9	U.S. Net Generation of Electricity by Energy Source, 1960-2002.	13
1.10	Net Generation of Electricity in Utah by Energy Source, 1960-2002	15
1.11	U.S. Energy Consumption by Source, 1960-2002 (physical units)	17
1.12	Energy Consumption in Utah by Source, 1960-2002 (physical units)	18
1.13	U.S. Energy Consumption by Source, 1960-2002 (trillion Btu)	19
1.14	Energy Consumption in Utah by Energy Source, 1960-2002 (trillion Btu)	21
1.15	U.S. Energy Consumption by End Use, 1960-2002.	23
1.16	Energy Consumption in Utah by End Use, 1960-2002.	25
1.17	U.S. Average Residential Fuel Prices, 1960-2003.	27
1.18	Average Residential Fuel Prices in Utah, 1960-2003.	29
Coal		
2.1	U.S. Recoverable Coal Reserves at Producing Mines by State, 1994-2002	32
2.2	Recoverable Coal Reserves at Producing Mines, Estimated Recoverable Reserves at Demonstrated Reserve Base by State and Mining Method, 2002	
2.3	Utah Coal Reserves by Coal Field, 2002.	
2.4	Utah Coal Reserves by County, 2002.	36
2.5	Utah Coal Reserves by Landownership, 2002.	37
2.6	U.S. Coal Production and Number of Mines by State and Mine Type, 2002	38
2.7	U.S. Coal Production by State, 1994-2002.	39
2.8	Net Coal Production in Utah by Coal Mine, 2002	40
2.9	Coal Production and Miner Productivity in Utah, 1960-2002.	41
2.10	Coal Production and Miner Productivity in Utah, 1960-2002.	42
2.11	Coal Production in Utah by Coal Field, 1982-2002.	44
2.12	Coal Production in Utah by Landownership, 1980-2002.	46
2.13	Distribution of Utah Coal by Principal State, 1970-2002	48
2.14	Distribution of Utah Coal by Method of Transportation, 1970-2002	50
2.15a	Distribution of Utah Coal by Destination and Method of Transportation, 2002	52
2.15b	Distribution of Utah Coal by Destination and Method of Transportation, 2001	53

Coal (con	tinued)	
2.16	Distribution of Utah Coal by End Use, 1970-2002.	54
2.17a	Distribution of Utah Coal by Destination and End Use, 2002	56
2.17b	Distribution of Utah Coal by Destination and End Use, 2001	57
2.18	Coal Imported into Utah by Source State and End Use, 1980-2002	59
2.19	Distribution of Coal in Utah by End Use (imports plus in-state distribution),	
2.20	1960-2002.	
2.20	Coal Supply and Distribution in Utah, 1970-2002.	
2.21	Consumption of Coal in Utah by End Use, 1960-2002.	
2.22	End-Use Price of Coal Consumed in Utah, 1970-2002.	66
Crude Oil	l and Petroleum Products	
3.1	U.S. Proved Reserves of Crude Oil and Natural Gas Liquids by State, December 3 2002.	
3.2	Proved Reserves of Crude Oil and Natural Gas Liquids in Utah, 1960-2002	71
3.3	Exploration and Drilling Activity in Utah, 1960-2002.	74
3.4	Crude Oil Drilling Activity in Utah by Well Type, 1960-2002	75
3.5	Well Completions in Utah, 1960-2002.	76
3.6	U.S. Crude Oil Production by State, 1994-2002.	78
3.7	Crude Oil Production in Utah, 1960-2002.	79
3.8	Utah Crude Oil Production by County, 1993-2002	81
3.9	Crude Oil Production in Utah by the 25 Largest Fields, 2002	83
3.10	Crude Oil Production in Utah by the 25 Largest Operators, 2002	84
3.11	Crude Oil Production by Landownership in Utah, 1960-2002	85
3.12	U.S. Stripper Oil Well Production by State, January 1, 2003	87
3.13	Stripper Oil Well Production in Utah, 1991-2002	88
3.14	Production, Price, and Value of Crude Oil in Utah, 1960-2002	89
3.15	Utah Refinery Receipts of Crude Oil by State of Origin, 1960-2002	91
3.16a	Refinery Production Activity in Utah, 2002.	93
3.16b	Refinery Production Activity in Utah, 2001	94
3.17	Petroleum Refining Capacity in Utah as of January 1, 2003	96
3.18	Petroleum Refinery Utilization of Capacity in Utah, 1960-2002	97
3.19	Consumption of Petroleum Products in Utah, 1960-2002.	98
3.20	Consumption of Petroleum Products in Utah by End Use, 1960-2002	100
3.21	End-Use Price of Petroleum Products Consumed in Utah, 1970-2002	102
3.22	U.S. Price of Motor Gasoline by State, 1994-2002.	104
3.23	Federal and State Motor Fuel Taxes, January 1, 2003	106
Natural G	as	
4.1	U.S. Proved Reserves of Natural Gas by State, December 31, 2002	108
4.2	Proved Reserves and Gross Production of Natural Gas in Utah, 1960-2002	109

Natural	Gas (continued)	
4.3	Utah Natural Gas Drilling Activity by Well Type, 1960-2002	112
4.4a	U.S. Natural Gas Production by State, 2002 (available data)	. 113
4.4b	U.S. Natural Gas Production by State, 2001.	. 114
4.5	Natural Gas Gross Production in Utah by County, 1993-2002.	11:
4.6	Natural Gas Gross Production in Utah by the 40 Largest Fields, 2002	. 117
4.7	Natural Gas Gross Production in Utah by the 40 Largest Operators, 2002	. 118
4.8	Natural Gas Processing Plants in Utah, January 1, 2002.	. 119
4.9	Natural Gas Plant Operations in Utah, 2002.	. 120
4.10	Gross Withdrawal, Marketed Production, and Dry Production of Natural Gas in Utah 1960-2002.	
4.11	Natural Gas Marketed Production in Utah by Landownership, 1960-2002	. 123
4.12	U.S. Stripper Gas Well Production by State, January 1, 2003	. 125
4.13	Stripper Gas Well Production in Utah, 1993-2002	. 126
4.14	Natural Gas Wellhead Price and Value of Marketed Production in Utah, 1960-2002	127
4.15	Natural Gas Supply and Disposition in Utah, 1960-2002	. 129
4.16	Natural Gas Balance of Supply and Consumption in Utah, 1960-2002	
4.17	Consumption of Natural Gas in Utah, 1960-2002.	132
4.18	End-Use Price of Natural Gas Consumed in Utah, 1960-2002	134
4.19	Natural Gas Consumers in Utah by Class of Service, 1960-2002	136
4.20	Coalbed Methane Proved Reserves and Production in Utah and the U.S., 1990-2002.	137
Electricit	·	
5.1	The 35 Largest Utility Power Plants in Utah Ranked by Generator Nameplate Capacity, 2002	140
5.2	Coal-Fired Electric Power Plants in Utah, 2002.	
5.3	Petroleum-Fired Electric Power Plants in Utah, 2002.	
5.4	Natural Gas-Fired Electric Power Plants in Utah, 2002.	
5.5	Geothermal Power Plants in Utah, 2002.	
5.6	Hydroelectric Power Plants in Utah, 2002.	
5.7	Non-Utility Electric Power Plants in Utah, 2002.	
5.8	U.S. Total Electricity Net Generation by Energy Source, 2001	
5.9a	U.S. Net Generation at Electric Utilities by Energy Source, 2002	
5.9b	U.S. Net Generation at Electric Utilities by Energy Source, 2001	
5.10	U.S. Electricity Net Generation by State, 1995-2001	
5.11	U.S. Net Generation at Electric Utilities by State, 1995-2002.	
5.12	Net Generation of Electricity in Utah by Energy Source, 1960-2002	
5.13	Consumption of Fossil Fuels at Electric Utilities in Utah, 1960-2002	
5.14	Coal-Fired Electricity Generation in Utah by Plant, 1992-2002	
5.15	Petroleum-Fired Electricity Generation in Utah by Plant, 1992-2002.	
5.16	Natural Gas-Fired Electricity Generation in Utah by Plant, 1994-2002.	

Electricit	y (continued)	
5.17	Hydroelectric Generation in Utah by Plant, 1994-2002.	161
5.18	Cost of Fuel to Generate Electricity in Utah, 1970-2002.	163
5.19	Sales of Electricity in Utah by Class of Service, 1960-2002.	165
5.20	Price of Electricity in Utah by Class of Service, 1960-2002	167
5.21	U.S. Price of Electricity by State, 1993-2002.	169
5.22	Expenditures for Electricity by Class of Service in Utah, 1960-2002	171
5.23	Electric Utility Customers in Utah by Class of Service, 1960-2002	173
5.24	Electric Utilities in Utah, 2002.	175
5.25	Electric Utilities Serving the Residential Sector in Utah, 2002.	176
5.26	Electric Utilities Serving the Commercial Sector in Utah, 2002	177
5.27	Electric Utilities Serving the Industrial Sector in Utah, 2002.	178
5.28	Electric Utilities Serving the "Other" Sector in Utah, 2002	179
Renewabl	e Resources	
6.1	Total Renewable Net Generation by Source and State, 2001	182
6.2	U.S. Electricity Net Generation from Renewable Energy by End Use Sector and Source, 1998-2002.	183
6.3	U.S. Renewable Energy Production by Source, 1960-2002	184
6.4	U.S. Renewable Energy Consumption by Source, 1960-2002	186
6.5	U.S. Renewable Energy Consumption by Energy Use Sector and Energy Source, 1998-2002.	188
6.6a	Estimated Renewable Energy Consumption in Utah, 1980-2002 (physical Units)	190
6.6b	Estimated Renewable Energy Consumption in Utah, 1980-2002 (trillion Btu)	190
6.7	Renewable Energy Facilities in the State of Utah, 2002.	191
6.8	Proposed Renewable Energy Facilities in the State of Utah	194
6.9	Camp Williams Wind Turbine Energy Generation, May 2000-2002	195
6.10	Glen Canyon National Recreational Area, Dangling Rope Marina Solar Energy	
c 11	Generation, Sept. 1996 - Nov. 2003	
6.11	Energy Saving Systems Tax Credit in Utah, 1980-2002 (as of Sept. 2003)	199
Weather		
7.1	Cooling Degree Days in Utah, 1960-2002	
7.2	Heating Degree Days in Utah, 1960-2002	204
U.S. Over	view by State	
8.1	U.S. Energy Production by State, 2001	
8.2	U.S. Energy Consumption by State, 2001	
8.3	U.S. Average Energy Prices by State, 2001	211

AppendixAAbbreviations.214BPetroleum Product Thermal Conversion Factors.215CSelected Biomass Thermal Conversion Factors.216DUtah Energy Production - Thermal Conversion Factors.217EUtah Energy Consumption - Thermal Conversion Factors.218